

Colorado's Marijuana "Experiment" and its Effect on DUI-Marijuana

Ed Wood, Morrison, CO

ed@duidvictimvoices.org

Overview

Although Colorado's legalization of marijuana has been called "a grand social experiment", it is anything but an experiment. An experiment requires control of input variables and measurement of outcomes. Colorado does neither.

Although the state controls dispensaries and retail marijuana sales, there is no control of supply, dose, purity, drug content or advertising claims. State-sanctioned sales constitute less than one-half of the state's marijuana consumption.

The only outcome that is reliably measured is tax revenue. Social costs of legalization, including DUI-marijuana are not measured.

Nevertheless, we do have sufficient indications of the effect of marijuana legalization to understand that DUI-marijuana is far more common than many realize, yet paradoxically far less deadly than many may have feared, at least through 2012, before the explosion in use of marijuana edibles, concentrates and topicals.

To understand this paradox, we will briefly review data from the Department of Revenue, Department of Transportation, Colorado State Patrol, testing laboratories, Fatality Analysis Reporting System (FARS), and a study conducted by DUID Victim Voices that looked at vehicular homicides and vehicular assaults in 2012.

Market Size and Demand

Colorado's Department of Revenue estimates there are 871,000 marijuana users in 2014. 9% of the total population, using marijuana at least once per month, would be considered regular users. The 786,000 adult users consume an estimated 121 metric tons of marijuana, and visitors buy an additional 9 metric tons. Not included in these figures is marijuana consumed by those under the age of 21. In spite of Colorado's claim to being well regulated, 21% of the state's users are under legal age. Assuming under-age users consume marijuana at the same rate as adults, one may infer a total state consumption of 153 metric tons, plus 9 tons for visitors. Only 78 of those tons are supplied by state-regulated shops.

Since marijuana is illegal according to federal law, none of the above numbers come from state measurements or records. Rather, they are estimated using data from the NSDUH survey of 2010/2011. No data are available on the market size or demand of edibles, concentrates or topicals.

CDOT survey

The Colorado Department of Transportation commissioned a telephone survey of adults in 2013. They learned that 22% of respondents were unaware that DUI laws included DUI-marijuana.

They also learned that DUI-marijuana was concentrated in a relatively small pool of 2% of the respondents who drove after recently consuming marijuana an average of 17 times per month. Other respondents rarely drove after consuming marijuana. This pool of mostly daily users consumes 2/3 of Colorado's marijuana, according to the Department of Revenue.

DUI statistics

CDOT reports there are about 25,000 DUI citations issued annually. State law has only a single statute number that combines both DUI-alcohol and DUI-drugs (DUID), which make it impossible, using state statistics, to know how many of those DUI citations are due to DUID.

CSP statistics

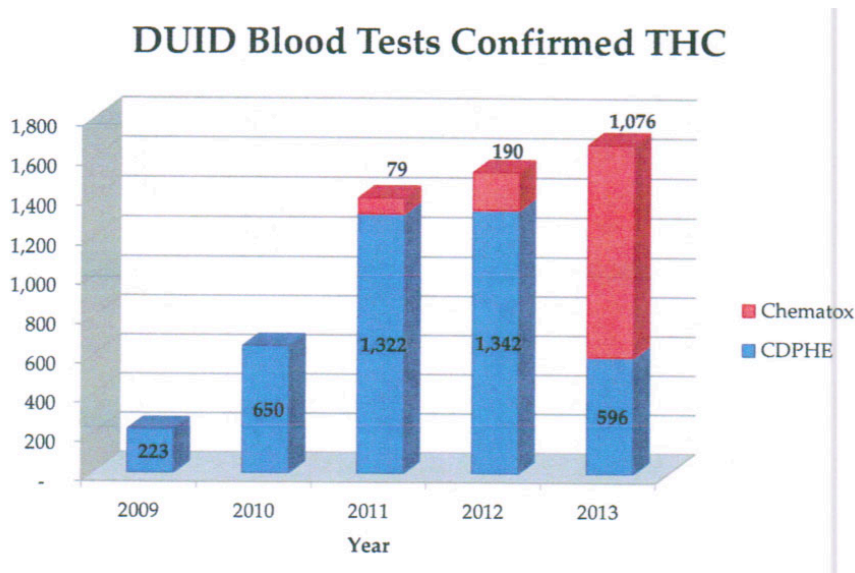
The Colorado State Patrol (CSP) issues just under 20% of the total DUI citations in the state. Through the first six months of 2014, CSP issued 2,323 citations. The other ~300 law enforcement agencies in the state issue the remaining DUI citations. CSP reports their DUI citations are up 24% from the same six-month period last year.

Recognizing the lack of statewide DUID measures, the CSP did a pilot study May-Oct of 2013 that manually collected DUI-marijuana statistics as part of the DUI citations, based on the officer's belief of the cause of the driver's impairment. During that pilot study, the CSP issued 283 DUI citations noting either marijuana impairment or impairment by marijuana combined with alcohol or other drugs. Most (55%) of those marijuana citations tested below the state's newly enacted 5 ng/ml permissible limit of THC.

The study was continued in 2014, resulting in 349 DUI-marijuana+ citations in the first six months of the year. If the CSP data represent the state, and if CSP issues 20% of the state's DUI citations, one could infer a 3,500 DUI-marijuana prevalence.

Unfortunately, since this is an *ad hoc* manual reporting system, it is not integrated with state judicial data, so there is no way to track judicial outcomes from this important work.

Laboratory data



The remarkable jump in confirmed positive blood tests for THC in DUID suspects from 2009 to 2011 occurred after the federal decision to abandon its enforcement of federal drug statutes in medical marijuana states, and the Colorado legislature's subsequent decision to commercialize marijuana sales through dispensaries.

FARS data

Not surprisingly, FARS data indicate that Colorado may have a DUI-marijuana problem. From 2007 to 2012, the number of traffic fatalities dropped 15%. Yet the number of fatalities with drivers testing positive for marijuana doubled.

Unfortunately, the FARS statistics combine THC with its inactive metabolite carboxy-THC, which renders the data less meaningful. Even more problematic is that most of the data come from coroner's testing of cadavers, and obviously none of them were charged with responsibility for causing the fatal crashes. The increased incidence could merely reflect increased marijuana usage, rather than increased causality.

DUID Victim Voices data

Structure

DUID Victim Voices performed a study to deal with the shortcomings of FARS data and the lack of Colorado's comprehensive data collection efforts. Vehicular homicide and vehicular assault cases in 2012 were analyzed. This data set was chosen since it is both more compact and more egregious than the full data set of DUI offenders in the state. In 2012, there were 246 such defendants, 207 of which were also charged with DUI. This provides a data set of felony defendants charged with culpability for collisions resulting in death or serious bodily injury, and also charged with DUI.

Two methods were used to determine the cause of the defendants' DUI charge (DUI-alcohol (DUI-A), DUID, or DUI A+D). First, court records were reviewed, including affidavits of probable cause, motions, letters, and plea bargain agreements. This resulted in a preliminary assessment of DUI-A, DUID, or DUI A+D for each defendant. Second, the two testing laboratories that performed drug testing for prosecutors reviewed the preliminary assessment. The lab reviews and interviews with a prosecutor and an arresting officer led to the final assessments.

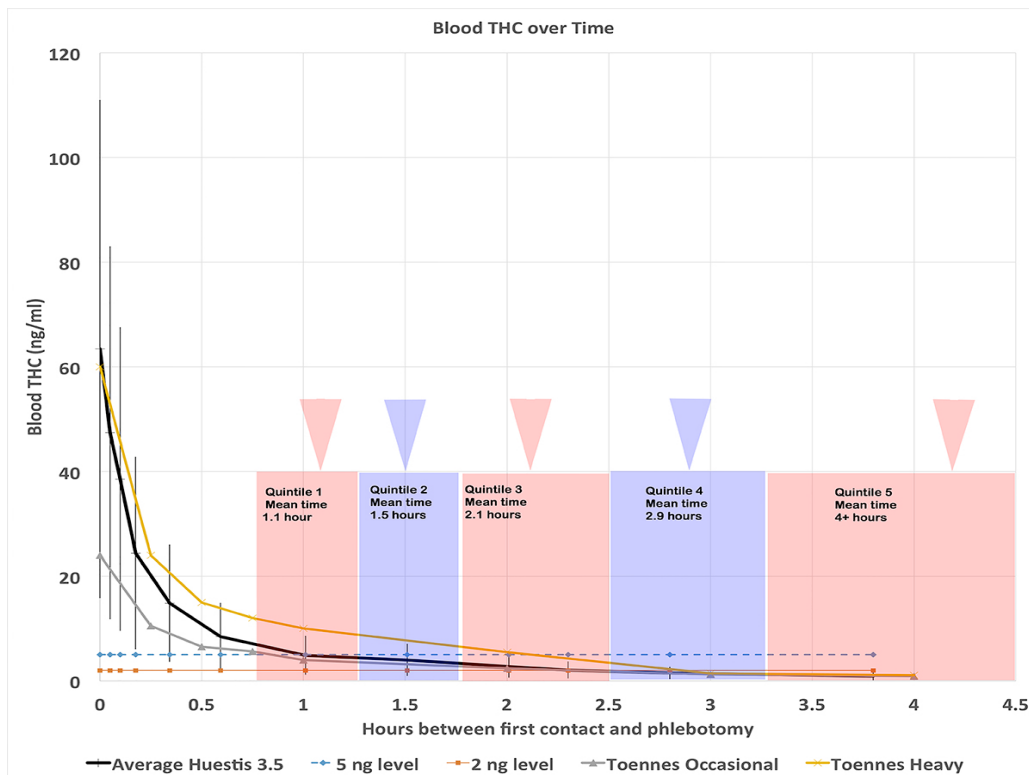
Limitations

All vehicular homicides were studied, but only 21% of the vehicular assaults were studied due to financial limitations. The study size was limited to 66 cases. Court record quality and completeness were highly variable and only 2/3 of the defendants were drug tested, so neither method can be relied upon as being definitive. The combination of court records and lab data is better, but undoubtedly imperfect. The characteristics of felony DUI offenders in this study may be different than the characteristics of misdemeanor DUI offenders that do not cause death or injury. Comparing the results of this study with CSP data suggests that the characteristics of the two groups of offenders may indeed be different.

Key findings

1. 83% of the 246 vehicular homicide and vehicular assault defendants were also charged with DUI. Vehicular homicide or assault due to mere recklessness was relatively rare.
2. 39% of the 66 DUI cases studied involved drugs. 16 (24%) were drugs combined with alcohol, and 10 (15%) were drugs alone. Marijuana *alone* was not implicated in a single fatality, although it has been in previous years. Marijuana *alone* was implicated in 2 vehicular assault cases in 2012.
3. 85% of the 26 DUID defendants were polydrug users, using multiple drugs, or drugs plus alcohol. DUID due to a single drug was relatively rare. 18 of the DUIDs involved marijuana, but only two cases were marijuana *only*.

- An average of 2.32 hours elapsed between the dispatch of a police officer to the scene of a crash and the drawing of the first blood sample. These delays make blood testing for marijuana's smoked THC moot, since it is absorbed and metabolized so rapidly.



The chart above plots blood THC content vs. hours since smoking cessation, using data previously published by Huestis and Toennes. The blue line shows the 5 ng/ml statutory level in Washington, Colorado and Montana, and the red line shows the 2 ng/ml statutory level in Ohio and Nevada.

The delay time from dispatch to blood draw is shown in quintiles, assuming the defendant was smoking marijuana at the time of dispatch, the best possible case for detecting THC. More realistically, the quintile boxes would be moved to the right, recognizing that time would elapse between the time of collision and dispatch, and even more time if the driver ceased smoking before the collision.

The variance bars on the Huestis data and the two different curves for occasional and heavy marijuana users tested by Toennes demonstrate the high inter-person variability seen with THC absorption/metabolism.

Nevertheless, it can be seen that it is unlikely that, using these assumptions, a stoned driver would test above Colorado's 5 ng/ml limit unless that driver was a heavy marijuana user. If that driver ceased smoking an hour before the collision, yet was still impaired with a THC concentration in blood as high as 15 ng/ml, it is likely that the driver's THC blood level would test below the 2 ng/ml level, and could even fall below the laboratory's limit of quantification, so the THC level would be reported as negative.

This can explain why data from the state's CDPHE lab from 2010-2013 showed that 70% of the 6,595 cannabinoid-positive drivers who were arrested on suspicion of driving under the influence of drugs tested below 5 ng/ml of THC in blood.

Follow on activity

A 2013 study is currently in progress that will include 100% of both vehicular homicide and vehicular assault cases. The study will explore, in addition to the above elements, the possible impact of the April 19, 2013 *State vs. McNeely* SCOTUS ruling and will also explore judicial outcomes. The latter will be an especially important addition to the study, since neither of the DUI-marijuana *only* defendants in the 2012 study pled guilty to DUI (one pled guilty to DWAI). This could simply be because the total numbers in the study were too small, or it could indicate a problem providing justice to victims.

Discussion

CDOT, CSP and laboratory data confirm that DUI-marijuana is common and becoming more so. FARS data hint that there might be a rise in marijuana-caused driving fatalities, but limitations in the FARS structure cannot prove that one way or another.

Data from DUID Victim Voices show that, at least for surviving drivers involved with driving felonies in 2012, marijuana *alone* was not significant cause of death or serious bodily injury, although it was certainly an important factor to the victims.

However, DUID was a far more important and significant cause of death or serious bodily injury than many might have assumed; 39% of 2012's felony DUIs involved drugs. The problem is DUID, especially polydrug use, and drugs combined with alcohol. Marijuana-caused driving impairment is only part of the larger problem of DUID. Focusing only upon DUI-marijuana misses the point entirely. The focus should be on DUID.

Colorado now has two legal recreational intoxicants, and comparatively little is known about the effects of marijuana on driving safety. In addition, there are dozens of legal intoxicants available by prescription, and many other intoxicants available on the black market. In view of this, Colorado must do a better job of measuring and analyzing DUID, and in enacting laws to deal with the findings of those studies. With possibly 39% of Colorado's DUIs resulting from drug use, this is not a "fringe" problem.